

CHANGES TO THE SPECIFICATION

Please insert the following paragraph on page 7, line 6, between the Brief Descriptions of FIGURES 2 and 3:

FIGURE 2A shows an alternative embodiment π network PIN diode attenuator circuit of the present invention;

Please amend the paragraph beginning at page 8, line 10, as follows:

The common cathode nodes of attenuator 100 are coupled to a DC ground (whether zero potential ground or some potential with respect thereto) through resistors (R_{31} for the common cathode node of D_{11} and D_{21} and R_{41} for the common cathode node of D_{31} and D_{41}). ~~Resisters~~ Resistors R_{31} and R_{41} are used to adjust the voltage present at that common cathode point as a function of the control voltage (V_{control}). The control voltage in attenuator 100 is provided to the pairs of diodes at the common anode node of D_{21} and D_{31} . As the control voltage is applied across one diode at the anode node, the corresponding cathode voltage will have a tendency to rise or fall, therefore adjusting the bias in the corresponding diode of the pair. As the current through a shunt diode (diode D_{11} or D_{41}) is increased, the current through the corresponding series diode (diode D_{21} or D_{31} , respectively) will decrease, and vice versa. With the control voltage V_{control} low, D_{21} and D_{31} are biased off and D_{11} and D_{41} receive DC bias from the reference voltage $V_{\text{reference}}$ resulting in a high attenuation. As the control voltage V_{control} is increased, D_{21} and D_{31} start receiving current from V_{control} and stealing current from D_{11} and D_{41} resulting in a lower attenuation.

Please amend the paragraph beginning at page 10, line 9, as follows:

Capacitors C_{32} - C_{52} , such as may be approximately 10,000 pF in a preferred embodiment, preferably provide RF shorts to ground. Inductors L_{12} and L_{22} , such as may be approximately 820 nH in a preferred embodiment, and inductor L_{32} , such as may be approximately 1,500 nH in a preferred embodiment, pass DC bias currents but present high impedance at RF frequencies. ~~Resisters~~ Resistors R_{12} and R_{22} , such as may be approximately 470 ohms in a preferred embodiment, preferably decouple the anodes of D_{12} and D_{42} to thereby block a possible RF leakage path.

Please amend the paragraph beginning at page 10, line 16, as follows:

In the π network configuration of FIGURE 2, PIN diodes $D1_2$ and $D2_2$ are coupled in a common cathode configuration with PIN diodes $D4_2$ and $D3_2$ mirrored with respect thereto. Specifically, the two series diodes, $D2_2$ and $D3_2$, are disposed in anti-phase or a common anode configuration. This configuration improves the dynamic range over the linearity of the structure by having the second order products of one diode canceled out by the opposite, non-linear portion generated in the series diode pair. The two shunt diodes, $D1_2$ and $D4_2$, are ~~connect~~ connected to the two series diodes in a common cathode configuration

Please amend paragraph beginning at page 11, line 24, as follows:

According to an alternative embodiment 200a of the present invention depicted in FIGURE 2A, steering resistors $R1_2$ and $R2_2$ are omitted and the two shunt diodes, $D1_2$ and $D4_2$, are provided independent attenuator control currents I_2 and I_3 . This embodiment of the present invention provides additional flexibility with respect to optimizing the match on either end of the attenuator to the characteristic impedance of the circuit into which it is inserted. For example, this alternative embodiment allows matching from a 50 ohm system to a 75 ohm system, if desired.

Please amend paragraph beginning at page 13, line 16, as follows:

In the T network configuration of FIGURE 4, PIN diodes $D1_4$. $D3_4$ are coupled in a common cathode configuration. The two series diodes, $D1_4$ and $D2_4$, are also disposed in a common cathode configuration. This ~~the~~ common collector configuration improves the dynamic range over the linearity of the structure by having the second order products of one diode canceled out by the opposite, non-linear portion generated in the series diode pair.